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CERTIFICATION OF TRANSLATION

I, Susan M. Eakins, of Alexandria, Virginia, do hereby certify that I am an experienced and professional translator of German into English and that the attached English language translation of the German language patent specification titled BODENTEPPICH-VERLEGESYSTEM, by inventor Hn. Schulte, to Gottlieb Binder GmbH & Co., is a true and correct translation of the German language document taken in its sense as an entirety attached thereto.

I do hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any United States Trademark or Patent Application pertinent thereto.



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Date: May 7, 2000

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Floor Carpet Installation System

The invention relates to a floor carpet installation system with the useful surface of the carpet being formed by its nap side and with an anchoring means that can be fixed to the floor, the anchoring means having protuberant mushroom-shaped elements having the form of fingers with thickenings at their ends, which come into interlocking engagement with the backside of the carpet formed of a loopless material, opposite the nap side.

A floor carpet installation system of this type is known already from DE 195 32 685 A1. In the known system a so-called mushroom strip is provided as anchoring means to be fastened to the floor, of which upwardly protuberant mushroom-shaped interlocking elements interlock together with its end thicknesses with a felt layer, which forms the backside of the carpet to be installed. This type of anchoring of the carpet incorporates certain inadequacies. In particular, this type of anchoring does not form a sufficiently secure connection for the prevention of sliding along the carpet plane. As a result then formation of buckling and bulges can occur during use, especially with higher stresses, for example by sliding of heavy pieces of furniture, leading to greater danger of damage.

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The object of the invention is to disclose a floor carpet installation system which guarantees a comparably improved anchoring between carpet and floor.

With a floor carpet installation system of the aforementioned type this object according to the invention is attained in that a micro-adhesive closing is provided as anchoring arrangement, in which the thicknesses of the fingers of the interlocking elements have the shape of plate-like heads, which are provided on the top with concave depressions, and that the depressions are provided with an adhesive causing additional connection with the backside of the carpet.

In this manner an especially fixed connection is attained in relation to relative movements along the carpet plane. Owing to the fact that longitudinal sliding is definitely prevented, no danger exists of arching or buckling, even with greater stress.

A micro-adhesive closing which is particularly suitable for the system according to the invention is known from DE 196 318 A1. In this case, according to the material make-up of the carpet to be installed, in particularly according to the structure of the carpet backside, a micro-adhesive closing with a thickness of the carrier of the interlocking elements of 0.1 to 0.5 mm and with 20 to 600 interlocking elements per cm² can be used.

One method for especially simple manufacture of micro-adhesive closings having interlocking elements with plate-like heads, whereby the heads are provided on their tops with concave depressions, is suggested in German patent application 198 28 856.5.

The depressions of the heads can be provided with the adhesive providing an additional connection with the backside of the carpet for example by scraping the adhesive on the heads.

Textile materials in the form of felts or fleeces can be provided as the backside of the carpet, or else loose breaker fabric or smooth stitching as found in non-woven textiles or materials.

Hereinafter the invention is to be explained in detail relative to the drawing. In the drawing are to be found :

- Fig. 1 a diagrammatically simplified and broken open cross section through a floor carpet with open nap and loopless backside;
- Fig. 2 a perspective, greatly enlarged view of a microplast-adhesive closing component, whereby a cross section of one individual interlocking element is represented greatly enlarged;

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- Fig. 3 a view corresponding to that of Fig. 2, whereby depressions on the tops of the heads of the interlocking elements are provided with adhesive, and
- Fig. 4 a broken open plan view in almost normal dimensions of the loopless backside of the carpet of Fig. 1.

Fig. 1 shows an enlarged, diagrammatically simplified representation of a cross section through a floor carpet with nap elements 1 of the traditional sort, extending upward from a connection layer 3 and forming the nap side of the carpet to serve as the useful surface. The backside 5 opposite the nap side is formed by a material having no loops. For this purpose materials can be considered which lend the carpet structure a certain degree of rigidity, alignment stability and tear resistance. For this purpose felt or fleece might be considered, which attain their mechanical composition by the tufting method and are glued together with connection layer 3 of the carpet. Loose breaker fabric or smooth right/left stitching and other so-called non-woven materials are also suitable for this purpose.

Fig. 2 shows a section of a strip of a microplast-adhesive closing 7 as disclosed in DE 196 46 318 A1. The thermoplastic strips (which may be for example polyolefin or a blend of polyamides) are formed in the gap between a pressing tool and a molding tool and form a foil-like carrier 9 with fingers 11 protruding out of its top. According to the mechanical construction and fineness of the structure of backside 5 of the relevant carpet, the arrangement of fingers 11 has a finger density of approximately 20 to 600 fingers 11 per cm², with a thickness of carrier 9 of

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approximately 0.1 to 0.5 mm. Other finger densities and/or thicknesses of carrier 9 can of course come into consideration according to special circumstances.

As can be seen especially from the sectional representation shown greatly enlarged in Fig. 2, the thickened heads 13 of fingers 11 are shaped into a mushroom- or plate-shape with concave topside, so that there is a depression 15 within the edges of each head 13.

With the example shown in Fig. 3, depressions 15 of heads 13 are filled with adhesive 17. This can be applied by spreading on or scraping on, in order to cause an additional composite binding effect, following the interlocking engagement with backside 5 of the relevant carpet. For example an adhesive on acrylate base, for instance 2-ethyl hexyl acrylate or butyl acrylate can be considered as an adhesive, in various different selected mixture ratios, in order to vary the plasticizing and the plasticity and adhesive power as desired and as required.

With installation of wall-to-wall carpets, adhesive closing 7 can be provided in the form of long strips or bands. With installation of the carpet in sections, shorter, individual strip segments can be provided in a suitable manner.